



## CONVERSATION RECORD

7/22/2015

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU

Wren Fowler, Mike Yaksh, Allen Lin, Kent Cole

DATE OF CONTACT

7/13/2015

TYPE OF CONVERSATION

☐ E-MAIL☒ TELEPHONE☒ INCOMING☐ OUTGOING

E-MAIL ADDRESS

Norma.Garcia-Santos@nrc.gov

TELEPHONE NUMBER

(301) 415-6999

ORGANIZATION

NAC International, Inc.

DOCKET NUMBER(S)

71-9235

LICENSE NUMBER(S)

N/A

CONTROL NUMBER(S)

ED20150060

SUBJECT

7/13/15, 10:00 AM-CONFERENCE CALL-DISCUSS THERMAL RAI NO. 1 RESPONSES FOR MODEL NO. NAC-STC TO ADD HBU AND WVDP HLW AS AUTHORIZED CONTENTS (DOCKET NO. 71-9235)(TAC NO. L24860)

SUMMARY

ATTENDEES:

NRC :

Michele Sampson, Branch Chief, Spent Fuel Licensing

Norma Garcia Santos, Project Manager

Jorge Solis, Senior Thermal Reviewer

Ricardo Torres, Materials Engineer

NAC International Inc.:

Kent Cole, CEO and President

Wren Fowler, Director, Licensing

Mike Yaksh, Engineering Manager, Applied Mechanics

Alan Lin, Engineering, Applied Mechanics

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ACTION REQUIRED (IF ANY)

NAC agreed to:

1. Provide to the NRC staff a table showing the maximum and minimum temperatures calculated, which are used to determine the delta T, in support of the responses to RAIs Th-3-5 and Th-3-6b.
2. Verify that the application included details on the fire accident analysis in support of RAIs Th-3-10 and Th-3-11.
3. Have a follow-up on call on the "convection" thermal questions on July 27th.

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NAME OF PERSON DOCUMENTING CONVERSATION

Norma Garcia Santos (reviewed by NRC staff and W. Fowler)

SIGNATURE

## CONVERSATION RECORD (continued)

SUMMARY: (Continued from page 1)

On July 13, 2015, NRC and NAC International Inc., (NAC or the applicant) participated on a phone call to clarify responses to requests for additional information (RAIs) related to the Thermal Evaluation for the Model No. NAC-STC (NAC-STC) amendment request to include high burn up fuel and high-level waste (HLW) from the West Valley Demonstration Project (WVDP) as authorized contents. The staff received the RAI responses on June 9, 2015 (by letter dated June 5, 2015).

The staff discussed NAC's response to RAIs related to the thermal evaluation. The staff focused on the responses to RAIs Th-3-1, Th-3-2, Th-3-5, Th-3-6, Th-3-7, Th-3-8, Th-3-10, and Th-3-11. NAC provided clarification on responses to RAIs Th-3-3, Th-3-4, Th-3-6, Th-3-10, and Th-3-11 and committed to provide additional information to justify the responses. The staff provided reasons why the responses to RAI Th-3-1, Th-3-2, Th-3-5, Th-3-7, and Th-3-8 are not acceptable. These questions are related to validation of the thermal model, model conservatism, and numerical error. The staff mentioned that NAC's approach of relying on thermal predictions to control the temperatures during transportation was a first-of-a-kind approach. Therefore, the applicant should calculate realistic temperatures. The staff stated that the applicant needed to support its calculations with an adequate validation and calculation of numerical error. The information below includes additional information of the RAI responses discussed during this telephone call.

### I. Thermal Evaluation

The discussion focused on clarifying the assumptions made in the thermal model, validation of the thermal model, and the acceptability of these assumptions.

#### A. RAI No. Th-3-1

The thermal model should use realistic minimum and maximum temperatures for normal conditions of transport. The staff pointed out that the information submitted in the RAI response pertained to the fabrication test and not to the thermal test for high burn up for the types of fuels in the application for the Model No. NAC-STC. Also, this response did not include a validation test for the maximum and minimum temperatures associated with the temperature difference of the fuel (i.e., Delta T). The applicant mentioned that this is the same methodology since 1991 and the staff was asking for a different approach. The applicant stated that if the staff's concern was the Delta T, this parameter was not affected. The staff pointed out that the applicant needed to demonstrate that this parameter would not be affected.

#### B. RAIs Nos. Th-3-2, Th-3-5, Th-3-6, Th-3-7

The staff pointed out that the analysis provided in the application maximizes the peak cladding temperature and it was not conservative for the minimum temperature of the fuel. The applicant mentioned that there was no flow path convection and convection would be negligible. The applicant mentioned that the methodology was similar as in 1989. The staff pointed out that:

- neglecting convection is not conservative nor realistic for this case and, if the applicant believed that convection was negligible, the applicant should provide an analysis demonstrating this assumption; and
- the applicant needed to revise the calculation to add the parameters in RAI No. Th-3-5.

#### C. RAI No. Th-3-7

The applicant stated that this was not applicable to these calculations, based on a study performed by the applicant in 2009. The staff stated that the methods proposed in the RAI were applicable to the NAC-SCT thermal analysis. Also, the staff stated that in order to obtain the numerical error, NAC needed to obtain the grid convergence index (GCI) using proposed methods described in ASME V&V 20-2009.

#### D. RAI Nos. Th-3-8, Th-3-10, Th-3-11

The staff stated that the applicant needs to justify the assumptions used in their calculations and the thermal model. The staff mentioned that it appears the applicant was relying on previous analyses for the fire analyses for the high burn up fuel and the high level waste for the West Valley Demonstration Project contents. The applicant pointed out that:

- for high burn up fuel, it performed a fire transient analysis for showing the evaluation of the peak cladding temperature; and
- for high level waste for the West Valley Demonstration Project (HLW WVDP), it obtained values from a fire transient model at 1475°F (provided in Calculation No. 4233000, Revision 2)

For RAI No. Th-3-11, the applicant mentioned the HLW WVDP contents has a low heat load. The staff agree with the approach taken in question Th-3-11, but still need information justifying the assumptions made on the thermal model for high burn up fuel.  
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**CONVERSATION RECORD (continued)**

ACTION REQUIRED (Continued from page 1)

D. RAI Nos. Th-3-8, Th-3-10, Th-3-11 (Continued)

The staff mentioned that if the applicant had existing information available for supplementing these RAIs, this could be sent as part of the submittal with changes to the SAR or prior to send these page changes supplementing the RAIs. If additional calculations are needed to respond to RAIs, the staff would issue a second round of RAIs.